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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,444	09/08/2003	James Cushman	CIS03-41(7924)	1643

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EXAMINER

CARPIO, IVAN HERNAN

ART UNIT	PAPER NUMBER
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2841

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/657,444

Applicant(s)

CUSHMAN ET AL.

Examiner

Ivan H. Carpio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 12/22/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                             |                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/7/05</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 12/22/05 have been fully considered but they are not persuasive. Applicant argues that, regarding independent claims 1,19,6,12 and 18, Manabe does not teach an air stream distribution apparatus that includes a base configured to couple with a circuit board where the base defines a first end and a second end, the apparatus also includes a plurality of deflectors configured to direct a corresponding portion of an air stream toward a respective area of the circuit board, examiner respectfully disagrees. Looking at Figure 1, we note that the deflectors are each separated from each other by a gap that reaches to the inside of the structure as is visible towards the middle of figure 1 element 3. Therefore air streams generated by element 4 would be deflected by surfaces of the deflectors to particular parts on the circuit board.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1-4, 6-9,11-15,17-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Manabe (US 6711019).

With respect to claim 1, Manabe discloses an air stream distribution apparatus comprising: a base configured to couple with a circuit board, the base defining a first end and a second end (Fig. 1, element 3a); and a plurality of deflectors in communication with the base and arranged in series between the first end and the second end defined by the base (Fig.1 element 3b), each of the plurality of deflectors defining a leading edge (inside edge of the deflector), the leading edge of each of the plurality of deflectors defining a height relative to a plane defined by the base, the height defined by the leading edge of each deflector increasing along an air stream direction between the first end and the second end defined by the base (the air stream can be flown both directions from right left and top to bottom), each of the plurality of deflectors configured to direct a corresponding portion of an air stream toward a respective area of the circuit board (Fig. 1 element 3b).

With respect to claim 2, Manabe discloses an air stream distribution apparatus in accordance with claim 1 wherein each deflector of the plurality of deflectors defines an angle relative to the plane defined by the base, the angle of each deflector increasing, relative to the plane defined by the base, along the air stream direction between the first end and the second end defined by the base (Fig.1).

With respect to claim 3, Manabe discloses an air stream distribution apparatus In a trailing edge (outside edge of the deflector), a distance between the leading edge and the trailing edge defining a deflector length, the deflector length of each deflector increasing along the air stream direction between the first end and the second end defined by the base (Fig.1).

With respect to claim 4, Manabe discloses an air stream distribution apparatus in accordance with claim 1 wherein the leading edge (inside edge of the deflector) defined by at least one deflector of the plurality of deflectors further defines a first thickness and wherein the at least one deflector defines a trailing edge (outside edge of the deflector) fudher defining a second thickness, the second thickness of the trailing edge less than the first thickness of the leading edge (Fig.1).

With respect to claim 6, Manabe discloses an air stream distribution assembly comprising: at least one circuit board component configured to couple to a circuit board (Fig. 1 element 1, and page 14, col. 1, lines 8-9. Manabe discloses a micro-processing unit (MPU) used for a personal computer or the like. It is inherent that the MPU must couple to a circuit board in order for the computer to operate), and an air stream distribution apparatus having a base configured to couple with a circuit board, the base defining a first end and a second end (Fig. 1, element 3a); and a plurality of deflectors in communication with the base and arranged in series between the first end and the second end defined by the base (Fig. 1 element 3b), each of the plurality of deflectors defining a leading edge (inside edge of the deflector), the leading edge of each of the plurality of deflectors defining a height relative to a plane defined by the base, the height

defined by the leading edge of each deflector increasing along an air stream direction between the first end and the second end defined by the base (the air stream can be flown both directions from right left and top to bottom), each of the plurality of deflectors configured to direct a corresponding portion of an air stream toward a respective area of the circuit board (Fig. 1 element 3b).

With respect to claim 7, Manabe discloses an air stream distribution assembly in accordance with claim 6 wherein each deflector of the plurality of deflectors defines an angle relative to the plane defined by the base, the angle of each deflector increasing, relative to the plane defined by the base, along the air stream direction between the first end and the second end defined by the base (Fig.1).

With respect to claim 8, Manabe discloses an air stream distribution assembly in accordance with claim 6 wherein the each deflector of the plurality of deflectors defines a trailing edge (outside edge of the deflector), a distance between the leading edge (inside edge of the deflector) and the trailing edge defining a deflector length, the deflector length of each deflector increasing along the air stream direction between the first end and the second end defined by the base (Fig.1).

With respect to claim 9, Manabe discloses an air stream distribution assembly in accordance with claim 6 wherein the leading edge defined (inside edge of the deflector) by at least one deflector of the plurality of deflectors further defines a first thickness and wherein the at least one deflector defines a trailing edge (outside edge of the deflector) further defining a second thickness, the second thickness of the trailing edge less than the first thickness of the leading edge (Fig.1).

With respect to claim 11, Manabe discloses an air stream distribution assembly in accordance with claim 6 wherein the at least one circuit board component comprises at least one transceiver module removeably coupled to the support and wherein each of the plurality of deflectors are configured to direct the corresponding portion of the air stream toward the at least one transceiver module (Fig. 1 element 1, and page 14, col. 1, lines 27-30. The micro-processing unit (MPU) is capable of receiving and transferring data)

Claim 12 is rejected under 35 U.S.C. 102(e) as being corresponding to claim 6 configured to couple with a circuit board, the base defining a first end and a second end (Fig. 1, element 3a); and a plurality of deflectors in communication with the base and arranged in series between the first end and the second end defined by the base (Fig. 1 element 3b), each of the plurality of deflectors defining a leading edge (inside edge of the deflector), the leading edge of each of the plurality of deflectors defining a height relative to a plane defined by the base, the height defined by the leading edge of each deflector increasing along an air stream direction between the first end and the second end defined by the base (the air stream can be flown both directions from right left and top to bottom), each of the plurality of deflectors configured to direct a corresponding portion of an air stream toward the at least one circuit board component Fig.1 element 3b).

Claim 13 is rejected under 35 U.S.C. 102(e) as being corresponding to claim 7 wherein each deflector of the plurality of deflectors defines an angle relative to the plane defined by the base, the angle of each deflector increasing, relative to the plane defined

by the base, along the air stream direction between the first end and the second end defined by the base (Fig.1).

Claim 14 is rejected under 35 U.S.C. 102(e) as being corresponding to claim 8 wherein the each deflector of the plurality of deflectors defines a trailing edge (outside edge of the deflector), a distance between the leading edge (inside edge of the deflector) and the trailing edge defining a deflector length, the deflector length of each deflector increasing along the air stream direction between the first end and the second end defined by the base (Fig.1).

Claim 15 is rejected under 35 U.S.C. 102(e) as being corresponding to claim 9 wherein the leading edge (inside edge of the deflector) defined by at least one deflector of the plurality of deflectors further defines a first thickness and wherein the at least one deflector defines a trailing edge (outside edge of the deflector) further defining a second thickness, the second thickness of the trailing edge less than the first thickness of the leading edge (Fig.1).

Claim 17 is rejected under 35 U.S.C. 102(e) as being corresponding to claim 11 wherein the at least one circuit board component comprises at least one transceiver module removeably coupled to the circuit board and wherein each of the plurality of deflectors are configured to direct the corresponding portion of the air stream toward the at least one transceiver module (Fig. 1 element 1, and page 14, col. 1, lines 27-30. The micro-processing unit (MPU) is capable of receiving and transferring data).

With respect to claim 18, Manabe discloses a computer system comprising: a frame (page 14, col. 1, lines 8-9. The personal computer has a frame to protect the

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electronic components from being damaged), a fan assembly coupled to the frame and configured to generate an air stream (Fig. 1 element 4), and at least one circuit board assembly coupled to the frame (not shown), the circuit board assembly having: a circuit board (Fig. 1 element 1, and page 14, col. 1, lines 8-9. Manabe discloses a micro-processing unit (MPU) used for a personal computer or the like. It inherent that the MPU must couple to a circuit board in order for the computer to operate), at least one circuit board component coupled to the circuit board (Fig. 1 element 1) and an air stream distribution apparatus having: a base configured to couple with the circuit board, the base defining a first end and a second end (Fig. 1, element 3a); and a plurality of deflectors in communication with the base and arranged in series between the first end and the second end defined by the base (Fig. 1 element 3b), each of the plurality of deflectors defining a leading edge (inside edge of the deflector), the leading edge of each of the plurality of deflectors defining a height relative to a plane defined by the base, the height defined by the leading edge of each deflector increasing along an air stream direction between the first end and the second end defined by the base (the air stream can be flown both directions from right left and top to bottom), each of the plurality of deflectors configured to direct a corresponding portion of an air stream toward the at least one circuit board component (Fig. 1 element 3b).

With respect to claim 26 and with all the limitations of claim 1, Manabe teaches that at least one of the plurality of deflectors is operable to create turbulence (Fig.1, note the sharp edges of the deflectors, air stream passing by the edges would be turbulent) in the corresponding portion of the air stream directed toward the circuit board.

With respect to claim 27 and with all the limitations of claim 5, Manabe teaches that the at least one deflector is configured as an airfoil (Fig. 1, note that an airfoil is a surface that produces lift from the movement of air over it, see

[http://www.google.com/search?hl=en&lr=&rls=GGLD,GGLD:2004-](http://www.google.com/search?hl=en&lr=&rls=GGLD,GGLD:2004-30,GGLD:en&oi=defmore&defl=en&q=define:Airfoil)

[30,GGLD:en&oi=defmore&defl=en&q=define:Airfoil](http://www.google.com/search?hl=en&lr=&rls=GGLD,GGLD:2004-30,GGLD:en&oi=defmore&defl=en&q=define:Airfoil) from Bernoulli's principle all we need is a surface area difference between two adjacent surfaces for this to occur, note that this exists between top and side surface of the deflectors)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5,10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manabe (US 6,711,019) in view of Solberg (US 5,343,362)

As noted above in the rejections under 35 USC 102(e), Manabe discloses an air stream distribution apparatus, an air distribution assembly, and a circuit board assembly in accordance with claims 4,9, and 15 wherein the trailing edge defined by the at least one deflector further defines a substantially tapered edge (Fig.1, the thickness of the deflector getting thinner as it goes from inside to outside edge), however, does not disclose expressly wherein the leading edge defined (inside edge of the deflector) by

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the at least one deflector further defines a substantially rounded edge. The Solberg reference, however, discloses an air stream distribution having at least one deflector with a substantially rounded edge' (Fig.2, the inside edge of the deflector 36). Manabe and Solberg are analogous art because they are from the same field of endeavor (Air stream distribution). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the deflector of Manabe with a rounded edge. The suggestion or motivation for doing so would have been obvious in view of teaching of Solberg by having a rounded leading edge deflector, so that it will increase the speed of the air-flow into the device. Therefore, it would have been obvious to combine Solberg with Manabe for the benefit of being able to increase the air- flow speed for faster cooling down the device to obtain the invention as specified in claim 5.

Regarding to method claims 19- 23, one skill in the art would necessarily perform the recited method steps in manufacturing an air stream distribution apparatus rejected above.

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manabe (US 6,711,019).

With respect to claim 24 and with all the limitations of claim 1, Manabe teaches all of the limitations except that the deflectors are configured to direct corresponding portion of an air stream following substantially parallel to the circuit board towards at least one circuit board component of the circuit board. It is well known in the art to remove hot air from components as quick and efficient as possible, in order to reduce

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the probability of damaging the component in particular with more sensitive components. One way to do this is to blow air directly across the top of a component to remove the hot air and replace it with cooler air. Blowing air perpendicular to the component takes more time to cool the component because the air has to travel a longer distance thus taking more time. It would have been obvious to one of ordinary skill in the art at the time of the invention to place the stream of air parallel (on the side) to the component and thus causing the deflectors to direct corresponding portion of an air stream following substantially parallel to the circuit board towards at least one circuit board component of the circuit board, for the purpose of more quickly and efficiently removing hot air from components as quick and efficient as possible, in order to reduce the probability of damaging the component.

With respect to claim 25 and with all the limitations of claim 24, Manabe teaches that the air distribution apparatus forms a gap between an upper surface of the at least one circuit board component and each of the plurality of deflectors (Fig. 1, with the fan on the side of the deflectors).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

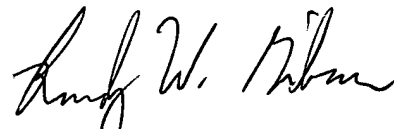
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ivan H. Carpio whose telephone number is 571-272-8396. The examiner can normally be reached on M-R 6:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**RANDY W. GIBSON**  
**PRIMARY EXAMINER**